

5

specific locations to increase the load transmission capabilities of movable platen 10. Location and size of vertical members 50a and 50b are based on structural analysis that yields an optimized design.

Referring specifically to FIG. 2, it can be seen that the present invention provides an optimized movable platen 10 structure for the uniform transmission of a clamp force F_c to mold half surfaces. As a result, a uniform pressure distribution P exists at the mold half surface and localized bending and deflections are minimized. The primary advantage to this arrangement is the reduction of clamp force while still avoiding flash on the molded article.

Another advantage of the present invention is that an injection molding machine having a lightweight platen is provided. This allows for the use of less power to move the platen and allows the platen to be moved quicker thereby reducing cycle times.

Still yet another advantage of the present invention is the reduction in energy usage of the molding machine to hold a mold closed during a molding operation due to a uniformly distributed sealing pressure.

It is to be understood that the invention is not limited to the illustrations described and shown herein, which are deemed to be merely illustrative of the best modes of carrying out the invention, and which are susceptible of modification of form, size, arrangement of parts and details of operation. The invention rather is intended to encompass all such modifications which are within its spirit and scope as defined by the claims.

What is claimed is:

1. A mold support platen adapted to be slidably carried on at least one rail of an injection molding machine, said platen comprising:

- a substantially rectangular front face specifically adapted to carry a mold half;
- a back face parallel to and spaced from said front face specifically adapted to interface with at least one clamp, said clamp configured to produce a clamping force substantially in the center of said back face and applying a force substantially perpendicular to said front face;
- a wall having a predetermined thickness and height protruding rearward from the periphery of said front face;

6

a plurality of spaced apart ribs extending in a predetermined pattern between and interconnecting each of said back face, said wall and said front face, wherein said force from said clamp is substantially uniformly transmitted from said back face to said front face thereby creating a uniform sealing pressure distribution during clamp-up.

2. The mold support platen of claim 1, wherein said back face further comprises a center void located in the center of said back face thereby creating four separate coplanar faces for the application of said clamp force.

3. The mold support platen of claim 1, further including clearance for the passing of a plurality tie-bars the length of said injection molding machine, said plurality of tie-bars not supporting said platen.

4. The mold support platen of claim 1, further comprising a first and second stiffener, each said stiffener attached at a predetermined location between and connecting a pair of said ribs located at the top and bottom of said platen.

5. The mold support platen of claim 4, wherein said first and second stiffeners are substantially t-shaped and further attach to said wall.

6. The mold support platen of claim 1, further comprising a first and second vertical member, each said vertical member attached at a predetermined position between and connecting a pair of said ribs located at the inside and outside of said platen.

7. The mold support platen of claim 1, further comprising at least one guide block in movable communication with said at least one rail.

8. The mold support platen of claim 7, further comprising at least one web attached to and connecting said wall to said at least one guide block.

9. The mold support platen of claim 1, including a mold adjacent said front face.

10. The mold support platen of claim 9, including an injection unit connected to said mold.

11. The mold support platen of claim 10, including a means for generating a mold clamping force adjacent said front face.

12. The mold support platen of claim 1, wherein said plurality of ribs forms a symmetrical pattern.

13. The mold support platen of claim 1, wherein each said plurality of ribs is substantially trapezoidal.

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